

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir.

Construction of phase II of the multi-curie fission products pilot plant at Oak Ridge, Tenn., is now open to bidders under USAEC invitation No. 401-56-4A. The work consists mainly of fabricating and installing such equipment as stainless steel tanks, precipitators, crystallizers, evaporators, centrifuges, etc. A pre-bid conference at Oak Ridge, Nov. 15th, will give prospective bidders an opportunity to discuss the project with USAEC people. Bids close Nov. 29th; further information from R. J. Dunbar, USAEC, Oak Ridge, Tenn. (Other BIDS ASKED, CONTRACTS AWARDED, p. 3 this LETTER.)

Research and developmental work on instruments in the nuclear field will now be undertaken by Gulton Mfg. Corp. (affiliate of Glenco Corp.), Metuchen, N.J. Intention is to produce and market devices such as detection alarm controls, flow meters and remote measuring and control instruments used in conjunction with radioactivity. Gulton Mfg. is a producer of piezo materials and electronic components. (Other PRODUCTS, p. 4 this LETTER.)

Continental Uranium, Inc., has now shown a net income of \$175,393 for the six months ended June 30th, 1955, after taxes and charges. This was on sales for the period of \$626,269 of the company's output of uranium ores. Continental acquired its first property September, 1954, and for the four months ended Dec. 31st, 1954, showed a net profit of \$91,607. (Other FINANCIAL news, p. 3 this LETTER.)

The bulk of the metallic uranium produced in England is processed in electric furnace equipment installed by the General Electric Co., Ltd., in establishments of the United Kingdom Atomic Energy Authority, Sir Harry Railing, chairman of G.E.C., recently told the firm's annual general meeting in London. He noted that the firm's atomic power station activities were centered at G.E.C.'s Fraser and Chalmers engineering works. Sir Harry stated that G.E.C. had received enquiries "from abroad" for complete atomic power stations, and for electric furnace installations for the production of pure uranium. (Other NEWS FROM ABROAD, p. 2 this LETTER.)

A pilot plant operation by Vitro Uranium (div. of Vitro Corp. of America), Salt Lake City, Utah, is aimed at solvent extraction of uranium from ore leach liquors. This is the first such pilot plant effort by a private uranium producing organization, and if feasible, will probably be used on a production scale when Vitro's Salt Lake City uranium mill is expanded. Present recovery of solubilized uranium by Vitro is by selective precipitation of uranous phosphate from leach liquors. (Other PROCESSES, p. 4 this LETTER.)

A nuclear research center, including a nuclear reactor of the "swimming pool" type, is to be built by the University of Buffalo on its campus for training engineering students and for industrial research. The University hopes to have a number of companies (which would use the reactor) support the \$750,000 cost of the project. American Machine & Foundry's AMF Atomics div. will supply the reactor.

ATOMIC ENERGY BUSINESS REPORTS...

NEW FACILITIES FOR EXPERIMENTAL WORK WITH RADIATION BY U.S. BUSINESS CONCERNS:-

A laboratory for experimental work in radioactivity is now planned by Sinclair Oil Corp.'s subsidiary, Sinclair Research Laboratories. The "hot" laboratories will be built in Harvey, Ill., outside of Chicago. Sinclair said the use in petroleum processes of nuclear radiation would be one of the fields of investigation of the laboratory..... A new analytical chemistry laboratory was formally opened last fortnight in Schenectady, N.Y., by General Electric Co. The facility, a major addition to the company's general engineering laboratory, is composed of a radiochemistry laboratory, for applications of radiotracer techniques to analytical chemistry; two instrument measurement laboratories; and two conventional analytical laboratories..... The central research laboratories of Monsanto Chemical Co., in Dayton, Ohio, will be enlarged for increased company research in nuclear applications, a Monsanto spokesman has now stated. Monsanto, which at one time had been interested in nuclear power reactor design, has changed its approach, and will widen its efforts devoted to applications of nuclear radiation in chemical processing.

ATOMIC ENERGY IN INDUSTRY CONFERENCE HELD IN NEW YORK:- Because of the advanced state of development of solid nuclear fuels, for the time being, all nuclear power reactors will use solid fuel elements rather than liquid fuels, Dr. Bernard Kopelman, chief engineer of the atomic energy division of Sylvania Electric Products, Inc., told the Atomic Energy in Industry meeting of the National Industrial Conference Board in New York last week. Solid fuel reactors require less maintenance, he observed, noting that this will be an important factor in the development of the nuclear reactor as a competitive power source..... Uranium will rank third in value of Canada's mineral output by 1958, W. J. Bennett, president, Atomic Energy of Canada, Ltd., told the meeting. He estimated such value by 1958 at \$180 million; for the current year he placed the output at about \$48 million, compared with \$6 million at the end of World War II..... Belgium is negotiating with U. S. firms to furnish a nuclear reactor power plant for a location near Brussels, Lewis L. Strauss, Chairman, USAEC, told the meeting. Mr. Strauss said that it is estimated the project will be completed by 1958. He also stated that the application of Consumers Public Power District of Nebraska, to build a nuclear power plant, had been approved in principle by the Commission, and that negotiations were underway. The application earlier of Consumers Power had been rejected; changes had then been made, with the new proposal now acceptable to the Commission..... At its present marginal cost even of 7 mills per kilowatt hour, nuclear power will be welcome in Great Britain and will assist the economy of that country greatly, Sir John Cockcroft, director, Atomic Energy Research Establishment, Great Britain, told the meeting. Sir John noted that by the early 1960's the cost may be brought down to the large scale usage level of 6 mills. Lord Citrine, chairman of Britain's Central Electricity Authority, who attended the meeting with Sir John, said there was confidence in Britain that nuclear power stations will prove superior to those using conventional fuels.

IN THE EDUCATIONAL FIELD...nuclear activities...

PERMANENT SITE FOR INSTITUTE:- A permanent campus in Oak Ridge, Tenn., is now planned by the Oak Ridge Institute of Nuclear Studies, Inc., a non-profit educational corporation of thirty-four universities and colleges, with the recent action of its board of directors who have recommended purchase of a forty-acre site in Oak Ridge. Some six buildings, occupying 168,000 square feet, would furnish the principal facilities of the development. The Institute trains scientists, physicians, and technicians in the use of radioisotopes. It also conducts research along various lines; its medical division has a small hospital in which cancer patients are treated.

UNIVERSITY TO PARTICIPATE IN NUCLEAR STUDY:- The University of Minnesota will now participate in a study of nuclear energy presently being conducted by Minneapolis-Honeywell Regulator, General Mills, and Northern States Power. The University will become a full member of the operating committee of the study group, which the three companies had established to operate the program. Objectives of the study are to determine which aspects of nuclear work may be best explored. The university's participation in the program is an extension of research work that various university departments have been carrying on for some time in the use of radioisotopes.

BIDS ASKED--CONTRACTS AWARDED...in the nuclear field...

BIDS ASKED:- The USAEC is now requesting proposals from U.S. firms for producing refined uranium salts in privately owned and operated facilities. The work would consist of refining uranium concentrates to produce a purified salt, converting the salt to uranium metal or uranium tetrafluoride, or uranium hexafluoride, and in the case of the metal, fabricating it into suitable shape, and selling the output under a guaranteed price and firm contract to the USAEC. Deliveries to the USAEC would be expected to begin about July, 1958, with the producer operating under a 5 year USAEC contract. Deadline for proposals is Mar. 31st, 1956. Further information from Mr. H. L. Price, USAEC, Washington, D. C.

Approximately 4.05 acres of land, improved with six buildings of various types of construction, at Knolls Atomic Power Laboratory, Schenectady, N.Y., are now offered for sale on a sealed bid basis by the General Services Administration (public buildings service), 250 Hudson St., New York 13. Invitation and bid forms can be obtained from the GSA at that address; deadline for submitting proposals is Nov. 22nd, 1955.

CONTRACTS AWARDED:- A cost-plus-fixed-fee contract for new construction estimated to cost \$13,500,000 has now been obtained from the USAEC by Swinerton & Walberg Co., of San Francisco, Calif., and Denver, Colo., for work at the USAEC's Rocky Flats, Colo., plant. The project, which will expand Rocky Flats facilities, involves two new buildings and related facilities, and modification of three existing buildings with installation of equipment. Architect-engineer on the job is Catalytic Construction Co., Philadelphia, Pa. (Rocky Flats plant, about 17 miles northwest of Denver, is operated under a USAEC contract by Dow Chemical Co., Midland, Mich.)

Work at W. Milton, N.Y., involving the preparation of a site for constructing facilities to test the submarine advanced reactor prototype nuclear power plant, will now be done by Leon Reynolds Construction Corp., of Northville, N.Y., under a contract recently given the Reynolds firm by the USAEC's local office at Schenectady, N.Y. The advanced reactor prototype testing will be done in the area adjacent the test site of the intermediate reactor prototype plant. (The submarine advanced reactor is a high performance reactor plant for submarine propulsion. It will be tested at West Milton by erecting a submarine hull containing the reactor with primary coolant system and related control, auxiliary systems, and steam producing equipment. The design and development work is being done by General Electric Co., Schenectady, under a primary USAEC contract.)

Contract to construct the hulls (and certain auxiliary equipment) for two new submarines, which will have nuclear power plants, has now been awarded General Dynamics' Electric Boat division, at Groton, Conn. One will be an attack-type vessel; the other a radar picket submarine. The contract, which was negotiated with Electric Boat by the U. S. Navy's Bureau of Ships, does not specify a firm price; further negotiations on a final price will continue, the Navy has said. (Electric Boat had built the first two U.S. nuclear-propelled undersea craft: U.S.S. Nautilus and U.S.S. Sea Wolf.)

FINANCIAL NEWS...of firms with nuclear operations...

EARNINGS REPORTS:- Record sales volume of \$857 million has now been shown by Union Carbide & Carbon Corp. for the nine months ended Sept. 30, 1955. Earnings for this period were also at a record high, showing \$3.48 a share, against \$2.18 a share for the corresponding period in 1954. Union Carbide operates under prime USAEC contracts the Oak Ridge, Tenn., and Paducah, Ky., gaseous diffusion uranium-235 producer plants; Oak Ridge National Laboratory; and other facilities. It employs some 16,000 persons exclusively engaged in nuclear activities under its contract operations.... Sales and earnings of Beckman Instruments, Inc., California electronic and nuclear instrument manufacturer, for the fiscal year ended June 30, 1955, were at a new high, with net income at \$1,322,050, an increase of 43% over the previous fiscal year. Net sales for the period totaled \$21,330,598.00, with earnings \$1.06 a share on the 1,249,735 capital shares outstanding.

URANIUM & THORIUM ACTIVITIES:- Following Colonial Uranium Co.'s acquisition of control of Thorium Corp. of America, a recapitalization for \$2 million is planned with the successor firm to be known as Colonial Nuclear Industries, Inc.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear lab & plant...

PRODUCTS FOR NUCLEAR PROJECTS:- A 2500 kilowatt geared-turbine generator, to be used in the prototype of the Army Package Power Reactor, is being supplied by General Electric Co.'s small turbine and supercharger department at Fitchburg, Mass. (Alco Products, Inc., of Schenectady, N.Y., which holds the prime USAEC contract for the APPR, and is procuring necessary components, expects to place the APPR in operation by early 1957. Alco received the contract in Dec. 1954; it recently began construction work on the APPR at the U. S. Army's engineer research and development laboratories, at Fort Belvoir, Va., since the reactor will be used by the Army for training and research purposes.)

Four two-high, four-high combination rolling mills are being built by Stanat Manufacturing Co., L. I. City, N.Y., for the USAEC's Argonne National Laboratory, Lemont, Ill. Argonne expects to put the \$150,000 rolling mill installation in operation early next year for processing plutonium-containing fuel elements.

The USAEC is now interested in boral sheets from industrial sources, and will stop their manufacture at its own Oak Ridge facilities if industrial supplies become available. (Boral is a material for the absorption of thermal neutrons. It is a mixture of boron carbide and aluminum, with light weight, good heat conductivity, and thermal stability, up to the melting point of aluminum. A pamphlet titled "Boral - A New Thermal Neutron Shield; No. AECD-3625 may be obtained for 35¢ from the Office of Technical Services, Wash. 25, D. C., describing manufacturing methods and properties.)

NEW PRODUCT NOTES:- A new Geiger counter tube, designed for X-ray spectrographic work involving elements such as phosphorous, silicon and aluminum, has now been made available by North American Philips Co., New York. Philips states that the resolving time of the tube is approximately 150 microseconds, with a threshold of about 800 volts..... A radiation detector, which is said to be uniformly sensitive to radiation emanating from various angles, is being used at Hanford Plutonium Works, Richland, Wash. General Electric Co., which operates Hanford under a prime USAEC contract, developed the instrument in its radiological sciences department there.

MANUFACTURERS' LITERATURE:- A 16 page booklet of technical information on materials made by this company for use in the atomic energy field is now offered by the Norton Co., Chippewa, Ontario, Canada. The booklet has data on boron for neutron absorption, technical grade boron, radiation damage to boron carbide, bonded boron carbide, boron nitride, and metal borides.

Bulletin GEA-6326A describes General Electric Co.'s four nuclear research reactors which it now offers; bulletin GER-1123 gives details of the company's oil-moderated nuclear test reactor. Both bulletins may be obtained from G-E's electric apparatus sales div., Schenectady, N.Y.

MEETINGS, COURSES, CONFERENCES...on nuclear subjects...

NUCLEAR ENGINEERING & SCIENCE CONGRESS:- The Congress (Cleveland, Dec. 12-16, 1955) which is being coordinated by the Engineers Joint Council for some 26 engineering and scientific groups now expects to have approximately 360 papers presented, covering all phases of nuclear energy. Full program, and other details, may be obtained from the Council, 29 W. 39th St., New York 18, N.Y.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS ANNUAL MEETING:- A symposium on Experiences in Nuclear Engineering Education will be a part of this meeting in Detroit, Mich., Nov. 27-30, 1955. Various graduate and undergraduate courses will be outlined, as well as doctoral research opportunities at USAEC installations.

CONFERENCE SCHEDULED:- The Atomic Bomb and Industry Conference, being held Nov. 17, 1955 at Illinois Institute of Technology (Armour Research Foundation), Chicago, will hear six formal addresses on such problems as the economics of plant protection; anti-blast structural design; operational planning to meet disaster; etc.

COURSES OFFERED:- Applications by college and university faculty members for three-month appointments in 1956, doing research at Oak Ridge Laboratories, are now being accepted by the university relations division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn. Applications must be filed by Dec. 15, 1955. The participant's Oak Ridge salary approximates his university salary.

ATOMIC PATENT DIGEST...patents & trademarks in nuclear field..

PATENTS ISSUED: Neutron-sensitive scintillators. In part, a neutron-sensitive scintillator comprising lithium iodide activated with about 0.0001 mol percent europium, such a scintillator being at least 1 mm. long in each dimension. U.S. Pat. No. 2,719,127 issued Sept. 27, 1955 to James Schenck, Oak Ridge, Tenn.

Radiographic apparatus, and method, for examining hollow articles. Comprises (in part) a radioisotope as a gamma ray source, enclosed in a shielding container with a shutter for the container. When used to radiograph pipe, means are provided for supporting a radiation sensitive film on the exterior surface of the pipe, and for supporting the gamma source at a predetermined distance from the pipe. U.S. Pat. No. 2,719,926 issued Oct. 4, 1955; assigned to Isotope Products, Ltd., Oakville, Ontario, Canada. (Inventors: C. G. Proctor and N. Z. Alcock.)

Radioactivity detector. Comprising (in part), in a radiation detecting device, a sensory matrix wherein at least one scintillation element is in substantially the same plane as an element of standard inherent luminescence, with a reflector parallel to and adjacent the luminescent element. Apertured opaque masking elements are adjacent the scintillation element, while a transparent waterproof body surrounds all elements. U. S. Pat. No. 2,721,274 issued Oct. 18, 1955, to David W. Garbellano, Berkeley, and Donald R. Cone, Oakland, Calif.

Method of sterilizing and preserving materials which comprises (in part) exposing them to radiations having an intensity of at least 50,000 Roentgen units per minute per square inch, and maintaining such an exposure until all living organisms are killed. U.S. Pat. No. 2,721,941 issued Oct. 25, 1955; assigned to M & R Dietetic Laboratories, Inc., Columbus, Ohio. (Inventors: R. C. McMaster and R. F. Robinson.)

Radiation detection. Apparatus for determining penetrative radiation such as gamma rays, comprising (in part) a mass of translucent liquid luminophor responsive to such radiations and which emits scintillations. A photo-sensitive detector is immersed in the liquid, with radiation being determined by the detector. U. S. Pat. No. 2,721,943 issued Oct. 25, 1955; assigned to Texaco Development Corp., New York, N. Y. (Inventor: F. C. Armistead.)

Geophysical exploration. The method of geophysical exploration for a deposit of oil comprising (in part) measuring at a series of locations the low-level radiation immediately above the undisturbed surface of the soil. The locations are charted, with the regions of maximum radiation indicating the periphery of the oil deposits. U. S. Pat. No. 2,721,945 issued Oct. 25, 1955; assigned to Research, Inc., Coffeyville, Kans. (Inventors: W. E. Sell and J. A. Forrester.)

Betatron. Comprising (in part) apparatus having a generally circular evacuated vessel and mechanism for accelerating and stabilizing electrons describing within this vessel an equilibrium orbital path. U. S. Pat. No. 2,712,949 issued Oct. 25, 1955 to Konrad Gunn and Hans Berger, Erlangen, Germany.

Electrostatic apparatus for bending beams of charged particles. Comprises (in part) means for creating a beam of charged particles, with a pair of arcuate, parallel, conducting plates, forming an arcuate passageway between them, and high impedance means electrically connecting these plates to each other. U. S. Pat. No. 2,721,954 issued Oct. 25, 1955; assigned to High Voltage Engineering Corp., Cambridge, Mass.

TRADE-MARKS ISSUED: Trade-mark Tracer-Gram has now been issued (Oct. 27, 1955) under SN-674,019 to Tracerlab, Inc., Boston, Mass., for chart paper used with a device for scanning body areas in which an administered radioactive isotope has localized, and on which the distribution of the isotope in the scanned area will be charted.

PATENTS APPLIED FOR: Application for U. S. patent has now been made by Justheim Petroleum Corp., Salt Lake City, Utah, for method of extracting oil from bearing shales using heat of a nuclear reactor. The heat would be used directly, or transferred to a steam generating device, producing electrical energy.

Sincerely,

The Staff,
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